IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Lip Teh	Atty Dkt:	2373/111
App. No:	10/552,180	Art Unit:	1793
Filing Date:	October 5, 2005	Examiner:	Gamino
Invention:	**Welded Connections**	Date:	September 11, 2009

Attn: Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Declaration of Emeritus Professor Gregory J. Hancock AM
Under Rule 37 C.F.R. 1.132
In Support of a Response to the Office Action of February 13, 2009

Dear Sir:

I, Gregory J. Hancock, declare as follows:

1. I am currently an Emeritus Professor of The University of Sydney. Prior to that, I was the Dean of the Faculty of Engineering and IT at the University of Sydney from May 2004 to August 2009. I have been a lecturer and then Professor in Structural Engineering and Steel Structures since 1972. From 1990 to 2009 I held the learned seat of Bluescope Steel Professor of Steel Structures in the Department of Civil Engineering, University of Sydney. I was also a Director, then Chairman, of the Centre for Advanced Structural Engineering from 1988 to 2003, at the University of Sydney. I received my PhD in Behaviour and Design of Thin-Walled Structures from the University of Sydney in 1975.

2. I have authored or co-authored over 250 scientific papers in the structural engineering and structural members area. I am author of "Design of Cold-Formed Steel Structures to the AS/NZS 4600:2005" (Australian Steel Institute, Sydney, 2007), and am joint author of "Cold-Formed Steel Structures to the AISI Specification" (with Murray and Ellifritt; New York, Marcel Dekker, Inc, 2001) and "Cold-Formed Tubular Members and Connections, Structural Behaviour and Design" (with Zhao and Wilkinson; Elsevier, London, 2005). I am also an inventor on 2 patents. I currently participate in the following professional service activities:

   - Editorial Board of the Journal of Constructional Steel Research (London)
   - Editorial Board of the Journal of Advances in Structural Engineering (Hong Kong)
   - Member of American Iron and Steel Institute Specification Committee (only non-North American member)

3. I have received the following honours and awards:

   - Fellow of Institution of Engineers, Australia
   - Honorary Fellow, Singapore Structural Steel Society
   - Fellow of the Australian Academy of Technological Sciences and Engineering
   - Member of the Order of Australia (AM) in 2006

4. I have substantial background in and understanding of welded connections in steel structures. My background includes a thorough understanding of techniques and equipment used for welding steel structural members, and the implications of the properties of the steel structural members when they are welded in accordance with a particular method.

5. I have been provided with and reviewed the following documents:

- JP2002-172462 issued to Tadateru et al "Tadateru"
- Verified translation of the Tadateru patent by Asia Technical Translation Pty Ltd.
- US Application No. 10/552,180 which names Lip Teh as the inventor "the present application" as originally filed
- USPTO Final Office Action issued for the present application, dated February 13, 2009
- Amended claims and Request for Continued Examination filed in response to the Final Office Action, response dated August 13, 2009

6. I have been advised that the US Patent Office concludes that claims 1 – 4, 15 – 16 and 19 – 20 of US Application No. 10/552,180 are anticipated in light of Tadateru. I have also been advised that the US Patent Office concludes that claims 5 – 8, 10 – 14 and 17 are obvious in light of the Tadateru Patent. When considering these objections, I have based my comments (below) on the amended claims filed August 13, 2009. For at least the following reasons, I disagree with the US Patent Office's analysis and conclusion in respect of Tadateru.

a. Tadateru discloses a technique of providing a cosmetic infill weld at the toe of the groove weld, that does not extend more than 15mm beyond the toe of the groove weld and, in the case of multiple weld beads (Mode of Implementation 3), the second welding bead extends back over the groove weld.

b. The infill weld of Tadateru is cosmetic, in that it is used to cover or hide the crack which forms during welding.

c. Tadateru discloses a technique for strengthening the groove weld to prevent cracking and fracture in the heat affected zone adjacent to the groove weld.

d. While Tadateru teaches buildup of a second welding bead in a groove weld, with the second weld bead extending back over the groove weld, the weld does not extend back along the structural member.

e. I find no teaching whatsoever in Tadateru to suggest that strain can (or indeed would) be moved away from the corners of the hollow section adjacent to the groove weld.

7. On reading through the specification of US Application No. 10/552,180, I note that an unexpected and surprising discovery is that the fracture zone is removed from the heat affected zone of the original connection weld, thereby increasing the rotation capacity in a welded moment connection between a polygonal hollow section (PHS) and a member. The rotation capacity increases because the greatest normal longitudinal strain occurs adjacent to a location that is remote from the connection weld. The remote location is defined by a plurality of weld beads which are applied transversely across a surface of the PHS, extending continuously across the surface of the PHS, away from the connection weld. No such technique is disclosed in the Tadateru patent. In the Tadateru patent, the only additional weld beads shown are those that are built-up on the groove weld; i.e. multiple weld beads that do not extend across the surface of the hollow section of Tadateru.

8. There is no mention in Tadeteru of strain being moved away from the groove weld. I also conclude that a skilled person, if applying the various techniques of Tadateru, would not achieve strain movement away from the groove weld, as the techniques would simply not have this outcome because Tadateru's cosmetic weld does not sufficiently extend along the surface of the hollow member.

9. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both,

under Section 1001 of Title 18 of the United States Code and that such wilful false statements may jeopardize the validity of the application or document or any registration resulting therefrom.

Date: 11th September 2009

Gregory J. Hancock